

Mr. DADDARIO. Mr. Bell.

Mr. BELL. Dr. Eckardt, in areas like Los Angeles County they have requirements to alleviate the pollutants that may come out of your refineries. Could you tell me what that is and how much it costs?

Dr. ECKARDT. I presume Mr. Gammelgard can answer this better.

Mr. GAMMELGARD. The industry in the Los Angeles Basin has taken a great number of measures, such as floating roof tanks to prevent evaporation loss from tanks. This raises the cost of the tank by at least 50 percent over what it would cost for a conventional cone roof tank.

Mr. BELL. Is that the tank that prevents the evaporation of the liquid gasoline?

Mr. GAMMELGARD. Yes. The roof floats on the surface of the liquid. Electrostatic precipitators on catalytic cracking units catch the last bit of catalyst dust that would otherwise get into the atmosphere. There are covered oil and water separators, closed loading systems on the tank truck and tank car racks to prevent vapors going into the atmosphere. Smokeless flares are used, as are sulfur recovery units.

These are very expensive measures and Los Angeles is certainly one area of the country where they do have a key problem and where much money has been spent.

Mr. BELL. How much are you talking about in money for one refinery that would be in one of the major industries?

Mr. GAMMELGARD. I would guess in the Los Angeles area they have invested \$75 million to \$100 million in facilities to control pollution from the refineries in the Los Angeles Basin. (Figures checked later and found to be \$87 million capital investment and \$100 million operating and maintenance costs for the period 1948-1965 inclusive.)

Mr. BELL. That is the total figure for all the refineries.

Mr. GAMMELGARD. In the Los Angeles Basin only.

Mr. BELL. Are you talking about major oil refineries or independents, too?

Mr. GAMMELGARD. All of them.

Mr. DADDARIO. Do you have any estimate as to what you save by preventing the evaporation? It seems to me it serves that purpose as well.

Mr. GAMMELGARD. There are some savings in the use of floating roof tanks for the lighter products like gasoline, but it is not exactly the type of investment you like to make because the payoff is pretty long.

Mr. DADDARIO. But there is some writeoff.

Mr. GAMMELGARD. Yes, there is.

Mr. BELL. When you have shutdowns for cleanup and repairs of the refineries and you are getting the coat off the tanks and conning towers, there is no falloff from that, is there?

Mr. GAMMELGARD. No.

Mr. DADDARIO. Mr. Mosher.

Mr. MOSHER. Dr. Eckardt, so far in your testimony you seem to be making a distinction between those standards that would provide for the protection of health and those that go beyond the protection of public health. Do you want to give us a suggestion of what the potential standards are that might be required that go beyond the protection of health? What are you thinking of there?